

accordance with the requirements of 37 C.F.R. § 1.121(c)(1), Applicant provides a marked-up version of the claims in an attached Appendix designated "Version of Claims with Markings to Show Changes Made." As a result of this Amendment, claims 1-21 remain pending.

In the outstanding Office Action, the Examiner rejected claims 9-17 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention; and rejected claims 1-10 and 13-20 under 35 U.S.C. § 103(a) as being unpatentable over Hayashi (U.S. Patent No. 5,015,866). The Examiner further indicated that claims 11 and 12 would be allowable if rewritten to overcome the objections under 35 U.S.C. § 112, second paragraph, and to include all the limitations of the base claim and any intervening claims. Applicant appreciates the indication of allowable subject matter in this application.

Applicant respectfully requests reconsideration of the application based on the following remarks:

Rejection under § 112, second paragraph

Regarding the rejection under 35 U.S.C. § 112, second paragraph, the Examiner rejected claims 9-17 as being indefinite. In particular, the Examiner rejected claim 9 because of lack of antecedent basis in the recitation "the mask arranging position." Applicant has amended claim 9 to recite "a mask arranging position." Further regarding claim 9, as pointed out by the Examiner, Applicant has replaced the phrase "position measuring mark" with "position measuring marks."

Regarding the recitation "said defect comprises a defect that lowers the reflectivity and a reflection defect" in claim 12, the Examiner alleged that "it is not understood with respect to what the first defect lowers reflectivity ... [and] to what type of defect the reflection defect refers." Office Action at page 2. Applicant has amended claim 12 to delete the phrase "and a reflection defect." Applicant respectfully traverses the Examiner's allegation regarding "a defect that lowers the reflectivity" because the meaning of the above-mentioned phrase is clearly disclosed in the as-filed application at, for example, page 12, lines 13-15 of the Specification and Figs 2A and 3A.

Accordingly, Applicant requests the Examiner to withdraw the rejection of claims 9-17 under 35 U.S.C. § 112, second paragraph.

In making the various references to the specifications and drawings set forth herein, it is to be understood that Applicant is in no way intending to limit the scope of the claims to the exemplary embodiments shown in the drawings and described in the specification. Rather, Applicant expressly affirms that he is entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

Rejection under § 103(a)

In the Office Action, the Examiner rejected claims 1-10 and 13-20 under 35 U.S.C. § 103(a) as being unpatentable over Hayashi.

Regarding the 35 U.S.C. § 103(a) rejection of claims 1-10 and 13-20, Applicant respectfully disagrees with the Examiner's arguments and conclusions as set forth in the Office Action.

To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. (See M.P.E.P. §2143.03 (8th ed. 2001)). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must “be found in the prior art, and not be based on applicant’s disclosure.” (M.P.E.P. §2143 (8th ed. 2001)).

The Examiner’s rejection of claims 1-10 and 13-20 under § 103(a) fails to meet the essential requirements for a *prima facie* case of obviousness, as set forth below.

Claim 1 recites a pattern forming method ... comprising, among other things, detecting a defect on a substrate surface.

In contrast, Hayashi discloses a leveling apparatus in which lateral deviation of the wafer due to the inclination of a leveling stage can be easily corrected at high speed. Id. at col. 2, lines 17-30. As also recognized by the Examiner, Hayashi fails to teach or suggest at least detecting a defect on a substrate. See Office Action at page 3.

The Examiner then attempts to cure this deficiency of Hayashi by alleging that the lateral deviation amount caused by the thickness variation is a *defect* of the surface of the wafer W. See Office Action at page 4 (emphasis added). Applicant respectfully disagrees with the Examiner’s allegation because the Examiner has mischaracterized the term “defect” by alleging that “a lateral deviation amount caused by the thickness variation [is] a defect.” Office Action at page 4. The present claimed invention is

directed to the field of photolithography technology. As understood in the art, the term “defect” refers to pattern error and pattern related error. It may also refer to the quality of a blank, for example, pinholes, scratches, and particles on the surface of the blank. However, the term “defect” does not refer to lateral deviation caused by the thickness of a wafer, as alleged by the Examiner.

Further, it appears as if the Examiner may have relied on taking Official Notice regarding the above-mentioned allegation regarding the term “defect” and Applicant challenges the appropriateness of taking such Official Notice in this case. Applicant refers the Examiner to the February 21, 2002 Memorandum from USPTO Deputy Commissioner for Patent Examination Policy, Stephen G. Kunin, regarding “Procedures for Relying on Facts Which are Not of Record as Common Knowledge or for Taking Official Notice.” In relevant part, the Memorandum states, “If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding” (Memorandum, p. 3). Applicant submits that the Examiner made a generalized statement regarding Applicants’ claims without any documentary evidence to support it. Applicant traverses the Examiner’s presumed taking of “Official Notice,” noting the impropriety of this action, as the Federal Circuit has “criticized the USPTO’s reliance on ‘basic knowledge’ or ‘common sense’ to support an obviousness rejection, where there was no evidentiary support in the record for such a finding.” Id. at 1. Applicant submits that “[d]eficiencies of the cited references cannot be remedied by the Board’s general conclusions about what is “basic knowledge” or “common sense.”” In re Lee, 61 USPQ2d 1430, 1432-1433 (Fed. Cir. 2002), quoting In

re Zurko, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Should the Examiner maintain the rejection after considering the arguments presented herein, Applicant submits that the Examiner must provide “the explicit basis on which the examiner regards the matter as subject to official notice and [allow Applicant] to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made” (Id. at 3, emphasis in original), or else withdraw the rejection.

To summarize, the Examiner has failed to make a *prima facie* case of obviousness at least because Hayashi fails to teach or suggest each and every element of claim 1. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 1 under 35 U.S.C. § 103(a) and the claim be allowed. Applicant submits that claims 2-8 are also allowable, at least by virtue of their dependency from allowable claim 1.

Furthermore, claims 4-7 recite a pattern forming method comprising, among other things, wherein the pattern position is rotated by 90°, 180°, 270°, and shifting the pattern position in x- and/or y-directions and by swinging the pattern position, respectively. Hayashi does not teach or suggest at least each of these recitations of claims 4-7.

The Examiner attempts to cure the deficiencies of Hayashi noted above by alleging that “it would have been obvious to one having ordinary skill in the art at the time the invention was made to correct the position of the pattern area of Hayashi by shifting it in the x- and/or y-directions and by swinging it by any degree to improve the accuracy of aligning the pattern area PA with the wafer W.” Office Action at pages 4-5. Applicants respectfully disagree with the Examiner’s allegations. .” It appears as if the

Examiner may have relied on taking Official Notice regarding this allegation and Applicant challenges the appropriateness of taking such Official Notice in this case, and asks the Examiner to supply factually-based evidence, such as a competent prior art reference in support of her position or else withdraw the rejection. *M.P.E.P. § 2144.03*. Alternatively, if the Examiner is relying on facts based on her personal knowledge, Applicant asks the Examiner to provide an affidavit in support of her statements, as required by M.P.E.P. § 2144.03, or withdraw the rejection.

Claims 9 and 18 contain recitations similar to allowable claim 1. For the reasons mentioned above with regard to claim 1, the Examiner has failed to make a *prima facie* case of obviousness also for claims 9 and 18. Accordingly, Applicant requests that the Examiner withdraw the rejection of claims 9 and 18 under 35 U.S.C. § 103(a) and the claims be allowed. Applicant submits that claims 10-17 and 19-20 are allowable, at least by virtue of their dependency from allowable claims 9 and 18, respectively.

Furthermore, claims 14-17 contain recitations similar to those of claims 4-7, respectively. Hayashi does not teach or suggest at least each of these recitations of claims 14-17.

The Examiner attempts to cure the deficiencies of Hayashi noted above by alleging that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to correct the position of the pattern area of Hayashi by shifting it in the x- and/or y-directions and by swinging it by any degree to improve the accuracy of aligning the pattern area PA with the wafer W." Office Action at pages 6-7. Applicants respectfully disagree with the Examiner's allegations. ." It appears as if the Examiner may have relied on taking Official Notice regarding this allegation and

Applicant challenges the appropriateness of taking such Official Notice in this case, and asks the Examiner to supply factually-based evidence, such as a competent prior art reference in support of her position or else withdraw the rejection. *M.P.E.P. § 2144.03*. Alternatively, if the Examiner is relying on facts based on her personal knowledge, Applicant asks the Examiner to provide an affidavit in support of her statements, as required by *M.P.E.P. § 2144.03*, or withdraw the rejection.

New claim 21 depends from allowable claim 9 and thus, is also deemed allowable.


In view of the foregoing remarks, Applicant requests the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: June 13, 2003

By:  Reg 24,014
for Richard V. Burgujian
Reg. No. 31,744

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

APPENDIX TO AMENDMENT OF JUNE 13, 2003

Version with markings to show the changes made

In the claims:

Please amend claims 9, 11, and 12, as follows:

9. (Amended) A pattern forming method, in which a main surface of a mask blank used [for preparation of] to fabricate a photomask is exposed in a desired pattern to form a mask pattern on said mask blank, comprising the steps of:

 forming position measuring marks on at least two points on a main surface of said mask blank;

 detecting [a] at least one defect on the main surface of said mask blank and obtaining defect analysis data including at least the kind of said defect and the position of the defect relative to said position measuring marks;

 comparing the obtained defect position with the relative position of the mask pattern that is to be formed on the mask blank so as to select [the] a mask pattern arranging position relative to the mask blank; and

 measuring the position measuring [mark] marks to calculate the light exposure position and applying an exposure treatment to the selected position.

11. (Amended) The pattern forming method according to claim 9, wherein:
 said mask blank comprises a transparent substrate and a light shielding film formed on said transparent substrate and is used for fabrication of a photomask that is exposed as a mask with transmissive exposure;

 said defect includes a black type defect and a white type defect; and

the pattern arranging position is selected such that said black type defect is buried in a light shielding film pattern, and said white type defect is exposed to a pattern opening that is not covered with said light shielding pattern.

12. (Amended) The pattern forming method according to claim 9, wherein:
said mask blank comprises a supporting substrate, a reflecting film formed on said supporting substrate, and a light shielding film formed on said reflecting film;
said at least one defect comprises [a] at least one defect that lowers the reflectivity [and a reflection defect]; and

[a] the pattern arranging position is selected such that at least one of said defect lowering the reflectivity is buried in a non-reflecting pattern and at least another of said [reflection] defect lowering the reflectivity is positioned on an opening that is not covered with a light shielding film pattern.